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Skylab

*L*aunched on May 14, 1973, *Skylab* was the first American space program wholly dedicated to scientific research, and the Marshall Center played an extremely important role in this unprecedented scientific venture.

Skylab's three different three-man crews spent up to 84 days in Earth orbit and performed a variety of more than 100 experiments. The Marshall Center developed the major *Skylab* components and the four Saturn launch vehicles used to launch the orbital cluster and its three separate crews. Marshall was also responsible for directing many of the experiments.

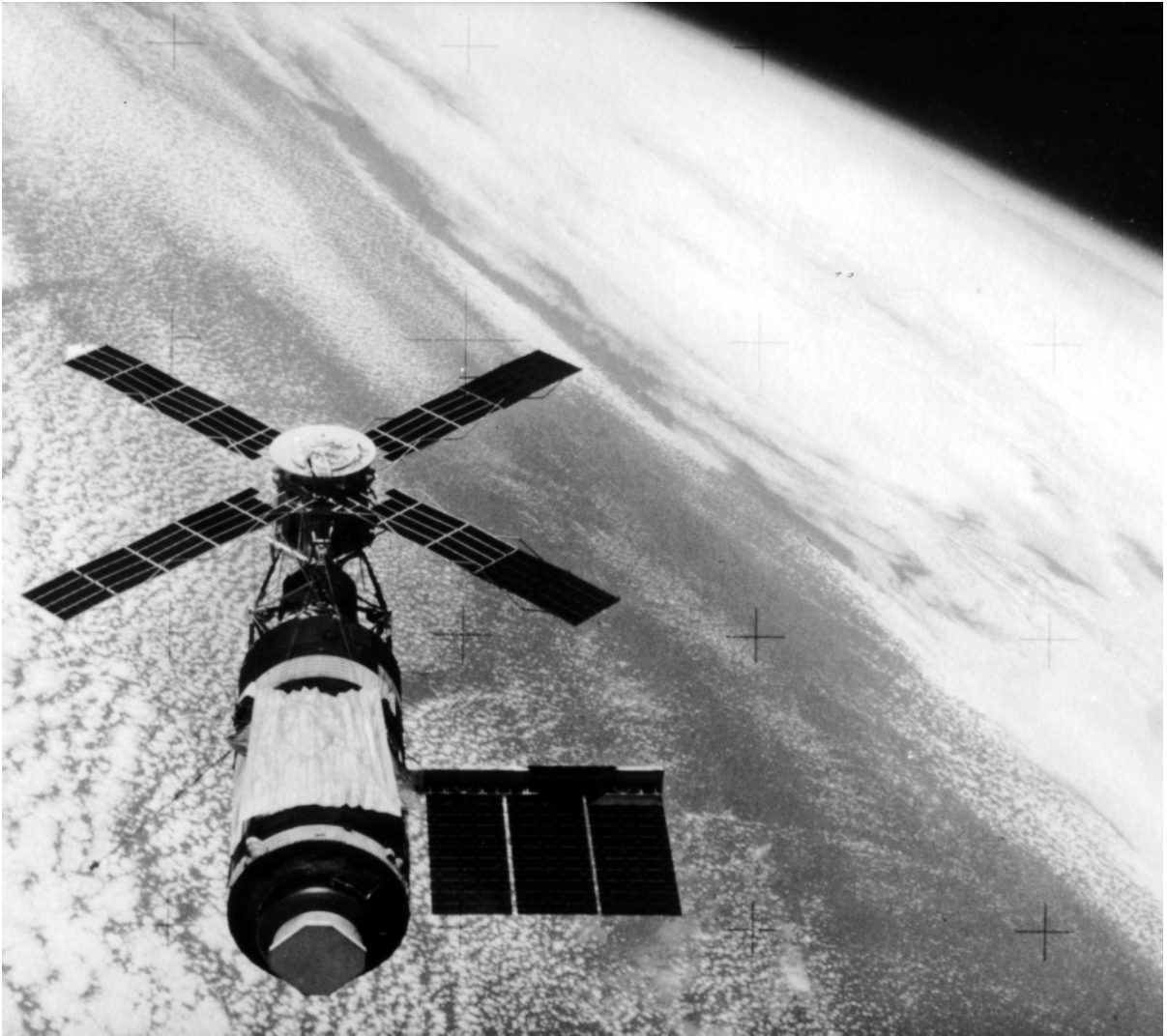
Marshall engineers designed the centerpiece component for *Skylab*, the orbital workshop, by converting a Saturn rocket stage into a habitable space module containing living quarters and support systems as well as experiment areas. Marshall assignments also included the *Skylab* airlock module, docking adapter, and Apollo Telescope Mount, the first manned astronomical observatory designed for solar research from Earth orbit.

The Center was also responsible for investigations in materials processing and solar physics, and designed and built a series of *Skylab* biomedical experiments.

Marshall also served as the NASA interface for a series of *Skylab* experiments proposed by students from across the country.

In 1973, NASA launched *Skylab* into space using a Saturn V rocket. Unfortunately, a huge panel protecting the orbital workshop from micrometeoroids and solar radiation ripped off seconds after the launch. NASA had originally planned to launch its first three-man crew to *Skylab* on May 15 using a Saturn IB rocket. Faced with a crisis, however, NASA put those plans on hold. Rising temperatures inside the workshop and a crippled electrical power system dogged engineers at Marshall and at other centers. Some Marshall employees stayed at their posts from dawn Monday through Wednesday looking for immediate and long-term solutions. Hundreds at the Center were involved in the relentless 10-day effort to identify the repair procedures and equipment that the astronauts eventually carried into space and used to save *Skylab*.

Skylab's first crew went into space on May 25, 1973, and returned home on June 22. A second crew was launched on July 28 and splashed down on September 25. Repair procedures were part of both missions, but attention also focused on the scientific data that *Skylab* gathered. For example, the second



This 1973 photograph clearly shows the Skylab workshop and attached observatory as it orbits high above the Earth.

mission orbited a pair of common spiders, Arabella and Anita. The experiment was designed to determine the spiders' ability to spin a web without the influence of gravity. It was one of the student experiments coordinated by the Marshall Center for *Skylab*.

The third manned *Skylab* crew went into space on November 16 and splashed down in February 1974 setting a new endurance record and reflecting man's ability to live and work in space for extended periods of time.